

In re: Kim et al.

Serial No. [REDACTED]

Filed: November 24, 2003

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REMARKS

Applicants respond herein to each of the issues raised in the Office Action. Applicants appreciate the thorough examination of the present application as illustrated by the Office Action and the indication of allowable subject matter in originally filed Claims 16 and 37. While various of the claims have been placed in a form indicated as allowable by the amendments above, Applicants submit the remaining claims are in form for allowance at least as the cited art fails to disclose or suggested the soft baking temperature of "about 100°C to about 300°C" as recited in these claims as will be more fully discussed below.

The Prior Art Rejections:

Claims 1, 3-6, 8-14, 22-23 and 25-30 stand rejected under 35 U.S.C. § 102(e) as being anticipated by United States Patent Application No. 2004/0038493 to Shi et al. ("Shi"). Claims 2, 7, 15, 17-21, 24 and 31-36 stand rejected under 35 U.S.C. § 103 as being unpatentable over Shih. Office Action, pp. 2-3. Applicants submit that the claims are patentable over the cited art for the various reasons discussed below.

Independent Claims 15 and 31 Are in a Form Indicated as Allowable:

Claim 15 has been amended to incorporate the recitations of objected to Claim 16. Claim 31 has been amended to incorporate the recitations of objected to Claim 37. Accordingly, the rejections of independent Claims 15 and 31 should be withdrawn as these claims are now in a form indicated as allowable.

Independent Claims 1, 18 and 32 Are Patentable:

Claims 18 and 32 have been amended to independent form including recitations previously found in the independent claims from which they depended. Independent Claim 1 has been amended to incorporate recitations from originally filed Claim 7. Claim 7 has been canceled in light of the amendments to Claim 1. As such, the rejections of independent Claims 1, 18 and 32 will be addressed particularly with reference to the rejection of Claims 1, 18 and 32 in the Office Action. The Office Action implicitly acknowledges that Shih does

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not disclose soft baking an SOG film at a temperature from "about 100°C to about 300°C" as recited in independent Claims 1, 18 and 32. However, the Office Action states that:

It would have been prima facie obvious to one skilled in the art to employ any of a variety of different process parameters during the soft baking process in the process taught above including those which are specifically claimed by the applicant. These are all well known variables in the soft baking art, which are known to effect both the rate and quality of the soft baking process. Further, the selection of particular values for these variables would not necessitate any undo experimentation, which would have been indicative of unexpected results.

Alternatively, it would have been obvious to one skilled in the art to employ the specific soft baking process parameters which are claimed by the applicant in the process taught above based upon *In re Aller* as cited below.

"Where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 220 F. 2d 454, 105 USPQ 233, 235 (CCPA).

Further, all of the specific process parameters which are claimed by the applicant are results effective variables whose values are known to effect both the rate, and the quality of the soft baking process.

Office Action, p. 5.

Applicants respectfully submit that this rejection should be withdrawn as the specification indicates that the recited range is not simply a case where "the selection of particular values for these variables would not necessitate any undo experimentation, which would have been indicative of unexpected results." Office Action, p. 5. As stated in the present application;

When the soft-baking process is performed at a temperature of lower than about 150°C, the SOG film 34 may not be easily hardened. Furthermore, a reflection index and a thickness of the SOG film 34 may vary with delay time when the soft-baking process is executed at a temperature of higher than about 300°C. For some embodiments of the present invention, the soft-baking process is performed at a temperature of about 150°C to about 300°C. As such, the SOG film 34 may be advantageously heated at a temperature of about 150°C to about 300°C with no thermal treatment other than the soft-baking process.

Specification, page 8, lines 5-13 (emphasis added). Thus, as contrasted with the "below 400°C" baking described in Shih, independent Claims 1, 18 and 32 recite both an upper and